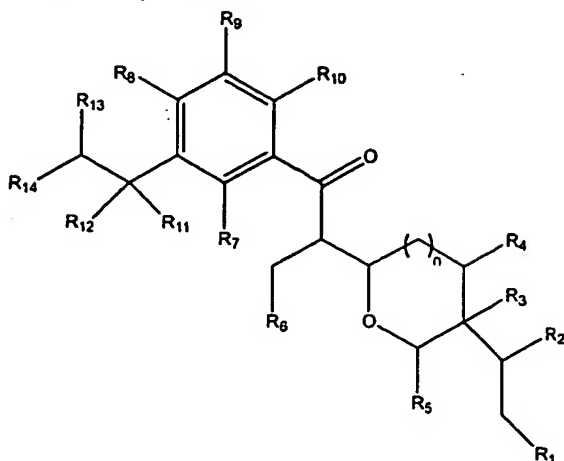


10/500424

DT04 Rec'd PCT/PTO 28 JUN 2004

## Claims

1. A compound having the structure:



or pharmaceutically acceptable derivative thereof;

wherein n is 0, 1 or 2;

R<sub>1</sub> is hydrogen or an aliphatic, heteroaliphatic, aryl or heteroaryl moiety;

R<sub>2</sub> and R<sub>3</sub> are each independently hydrogen, or, when taken together, may be -O- or -  
(CH<sub>2</sub>)<sub>q</sub>-, wherein q is 1, 2 or 3;

R<sub>4</sub> is hydrogen, hydroxyl, protected hydroxyl or OR<sup>i</sup>, or an aliphatic or heteroaliphatic moiety,

wherein R<sup>i</sup> is an aliphatic or heteroaliphatic moiety;

R<sub>5</sub> is hydrogen, hydroxyl, protected hydroxyl or OR<sup>ii</sup>, or an aliphatic or heteroaliphatic moiety,

wherein R<sup>ii</sup> is an aliphatic or heteroaliphatic moiety, or wherein R<sub>1</sub> and R<sub>5</sub>, when taken together, may form a cycloaliphatic or heterocycloaliphatic moiety comprising 6 to 12 atoms;

R<sub>6</sub> is hydrogen, or an aliphatic, heteroaliphatic, aryl or heteroaryl moiety;

R<sub>7</sub> is hydrogen, hydroxyl, protected hydroxyl, OR<sup>iii</sup>, or an aliphatic or heteroaliphatic moiety,

wherein R<sup>iii</sup> is an aliphatic or heteroaliphatic moiety;

R<sub>8</sub> is hydrogen, hydroxyl, protected hydroxyl or OR<sup>iv</sup>,

wherein R<sup>iv</sup> is an aliphatic or heteroaliphatic moiety;

R<sub>9</sub> is hydrogen, -CF<sub>3</sub>, -CHO, imine, hydrazone, oxime, carboxylic acid, carboxylic ester, acyl halide, ketone, amide, acetal, anhydride, dihalide, epoxide, nitrile or an aliphatic or heteroaliphatic moiety;

R<sub>10</sub> is hydroxyl or protected hydroxyl;

R<sub>11</sub> and R<sub>12</sub> are each independently hydrogen, hydroxyl or OR<sup>V</sup>, or an aliphatic or heteroaliphatic moiety, or, when taken together, may be -(C=O)-;

wherein R<sup>V</sup> is an aliphatic or heteroaliphatic moiety;

and R<sub>13</sub> and R<sub>14</sub> are each independently hydrogen, or an aliphatic, heteroaliphatic, aryl or heteroaryl moiety;

whereby each of the foregoing aliphatic and heteroaliphatic moieties may independently be substituted or unsubstituted, cyclic or acyclic, linear or branched, and whereby each of the foregoing aryl and heteroaryl moieties may be substituted or unsubstituted;

with the proviso that:

(a) when R<sub>4</sub>, R<sub>5</sub>, R<sub>8</sub> and R<sub>10</sub> are each hydroxyl, R<sub>7</sub> is hydrogen, R<sub>13</sub> and R<sub>14</sub> are each methyl, R<sub>2</sub> and R<sub>3</sub>, taken together, form an epoxide, and n is 1, the following groups do not occur simultaneously as defined:

(i) R<sub>1</sub> is methyl, R<sub>9</sub> is hydrogen, (R<sub>11</sub>, R<sub>12</sub>) is (=O) and R<sub>6</sub> is ethyl or isopropyl;

(ii) R<sub>1</sub> is methyl, R<sub>9</sub> is CHO, (R<sub>11</sub>, R<sub>12</sub>) is (OMe, H) and R<sub>6</sub> is ethyl, propyl or isopropyl;

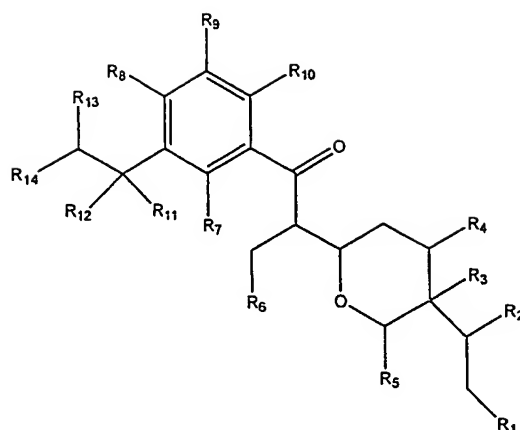
(iii) R<sub>1</sub> is methyl, R<sub>9</sub> is CHO, R<sub>11</sub> and R<sub>12</sub> are hydrogen and R<sub>6</sub> is ethyl, propyl or isopropyl;

(iv) R<sub>1</sub> is methyl, R<sub>9</sub> is COCH<sub>3</sub>, R<sub>11</sub> and R<sub>12</sub> are hydrogen and R<sub>6</sub> is ethyl; and

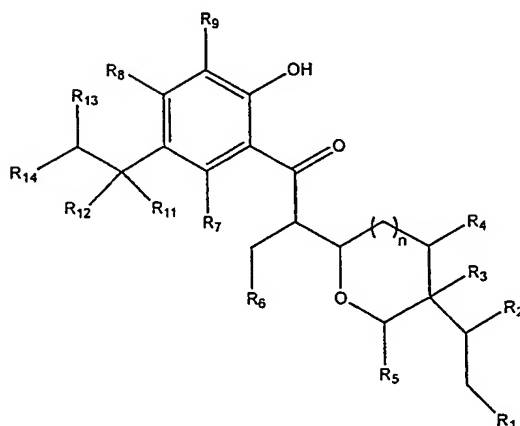
(v) R<sub>1</sub> is ethyl, R<sub>9</sub> is CHO, R<sub>11</sub> and R<sub>12</sub> are hydrogen and R<sub>6</sub> is ethyl; and

(b) when R<sub>1</sub> is methyl, R<sub>2</sub> and R<sub>3</sub>, taken together, form an epoxide, R<sub>6</sub> is ethyl, R<sub>7</sub> is hydrogen, (R<sub>11</sub>, R<sub>12</sub>) is (OMe, H), R<sub>13</sub> and R<sub>14</sub> are each methyl and n is 1, the following groups do not occur simultaneously as defined: R<sub>4</sub> and R<sub>5</sub> is OH or OBn, R<sub>8</sub> and R<sub>10</sub> is OH or -OCH<sub>2</sub>OCH<sub>3</sub> and R<sub>9</sub> is -CHO, -CH<sub>2</sub>OH or -CH<sub>2</sub>OTBS.

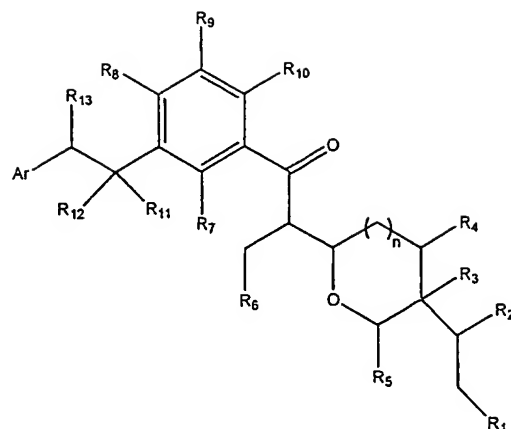
2. The compound of claim 1 wherein n is 1 and the compound has the structure:



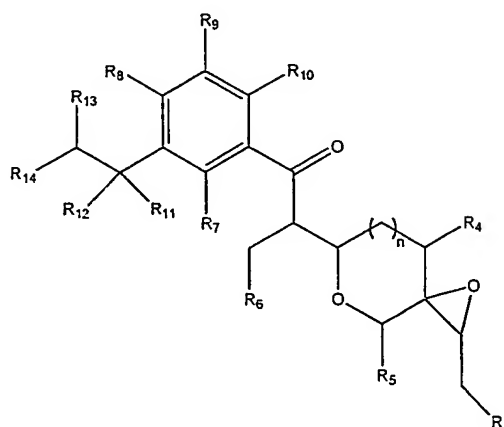
3. The compound of claim 1 wherein  $R_{10}$  is hydroxyl and the compound has the structure:



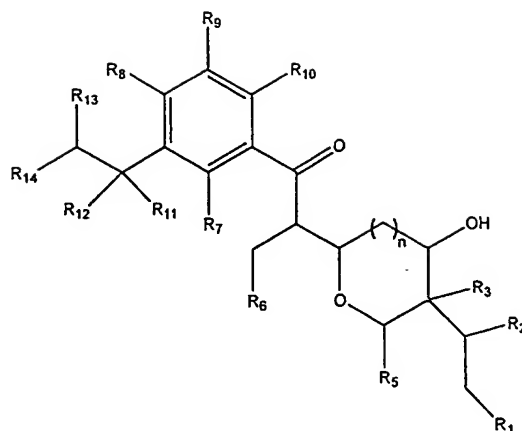
4. The compound of claim 1 wherein  $R_{14}$  is aryl and the compound has the structure:



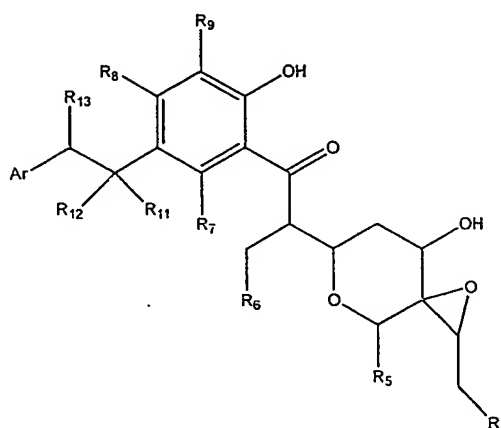
5. The compound of claim 1 wherein  $R_2$  and  $R_3$ , taken together, form an epoxide and the compound has the structure:



6. The compound of claim 1 wherein  $R_4$  is hydroxyl and the compound has the structure:



7. The compound of claim 1 wherein R<sub>2</sub> and R<sub>3</sub>, taken together, form an epoxide, R<sub>4</sub> and R<sub>10</sub> are each hydroxyl, R<sub>14</sub> is aryl, n is 1 and the compound has the structure:

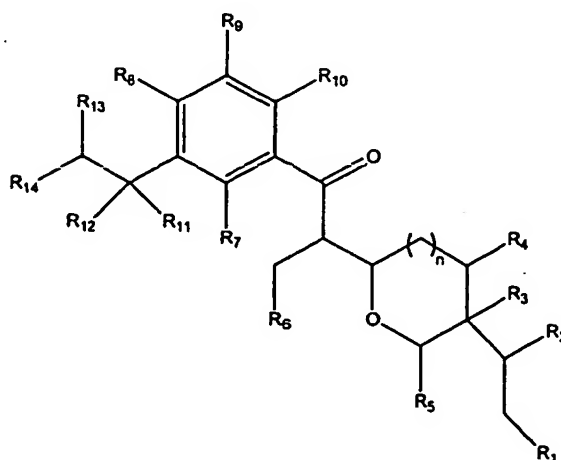


8. The compound of any one of claims 1, 2, 3, 4, 5, 6 or 7 wherein R<sub>1</sub> is hydrogen or lower alkyl, and wherein the alkyl substituent may be substituted or unsubstituted, linear or branched or cyclic or acyclic.
9. The compound of any one of claims 1, 2, 3, 4 or 6 wherein R<sub>2</sub> and R<sub>3</sub>, taken together, form a cyclopropyl moiety.

10. The compound of any one of claims 1, 2, 3, 4 or 6 wherein  $R_2$  and  $R_3$ , taken together, form an epoxide.
11. The compound of any one of claims 1, 2, 3, 4 or 5 wherein  $R_4$  is hydroxyl.
12. The compound of any one of claims 1, 2, 3, 4, 5, 6 or 7 wherein  $R_5$  is hydroxyl or lower alkoxy, and wherein the alkoxy substituent may be substituted or unsubstituted, linear or branched or cyclic or acyclic.
13. The compound of any one of claims 1, 2, 3, 4, 5, 6 or 7 wherein  $R_6$  is lower alkyl, and wherein the alkyl substituent may be substituted or unsubstituted, linear or branched or cyclic or acyclic.
14. The compound of any one of claims 1, 2, 3, 4, 5, 6 or 7 wherein  $R_7$  is hydrogen, hydroxyl, lower alkyl or lower alkoxy, and wherein the alkyl and alkoxy substituents may be substituted or unsubstituted, linear or branched or cyclic or acyclic.
15. The compound of any one of claims 1, 2, 3, 4, 5, 6 or 7 wherein  $R_8$  is hydrogen, hydroxyl or protected hydroxyl.
16. The compound of any one of claims 1, 2, 3, 4, 5, 6 or 7 wherein  $R_9$  is  $-\text{CHO}$  or  $-\text{CH}_2\text{OR}^{\text{vi}}$ , wherein  $R^{\text{vi}}$  is hydrogen, protecting group or an aliphatic moiety, and wherein the aliphatic moiety may be substituted or unsubstituted, linear or branched or cyclic or acyclic.
17. The compound of any one of claims 1, 2, 4, 5 or 6 wherein  $R_{10}$  is hydroxyl.
18. The compound of any one of claims 1, 2, 3, 4, 5, 6 or 7 wherein  $R_{11}$  and  $R_{12}$  are independently hydrogen or lower alkoxy, and wherein the alkoxy substituent may be substituted or unsubstituted, branched or unbranched or cyclic or acyclic.
19. The compound of any one of claims 1, 2, 3, 5 or 6 wherein  $R_{13}$  and  $R_{14}$  are independently hydrogen, lower alkyl or aryl, wherein the alkyl substituent may be

substituted or unsubstituted, branched or unbranched or cyclic or acyclic, and wherein the aryl substituent may be substituted or unsubstituted.

20. The compound of claim 4 or 7 wherein  $R_{13}$  is lower alkyl, and wherein the alkyl substituent may be substituted or unsubstituted, linear or branched or cyclic or acyclic.
21. The compound of claim 7 wherein  $R_1$  is hydrogen or lower alkyl,  $R_5$  is hydroxyl or lower alkoxy,  $R_6$  is lower alkyl,  $R_7$  is hydrogen, hydroxyl, lower alkyl or lower alkoxy,  $R_8$  is hydrogen, hydroxyl or protected hydroxyl,  $R_9$  is  $-\text{CHO}$  or  $-\text{CH}_2\text{OR}^{\text{vi}}$ ,  $R_{11}$  and  $R_{12}$  are independently hydrogen or lower alkoxy, and  $R_{13}$  is lower alkyl; wherein  $R^{\text{vi}}$  is hydrogen, protecting group or an aliphatic or heteroaliphatic moiety; whereby each of the foregoing alkyl, alkoxy, aliphatic and heteroaliphatic moieties may be independently substituted or unsubstituted, linear or branched, or cyclic or acyclic.
22. A pharmaceutical composition comprising:  
a compound having the structure:



or pharmaceutically acceptable derivative thereof; and

a pharmaceutically acceptable carrier;

wherein  $n$  is 0, 1 or 2;

$R_1$  is hydrogen or an aliphatic, heteroaliphatic, aryl or heteroaryl moiety;

$R_2$  and  $R_3$  are each independently hydrogen, or, when taken together, may be  $-O-$  or  $-(CH_2)_q-$ , where  $q$  is 1, 2 or 3;

$R_4$  is hydrogen, hydroxyl, protected hydroxyl or  $OR^i$ , or an aliphatic or heteroaliphatic moiety,

wherein  $R^i$  is an aliphatic or heteroaliphatic moiety;

$R_5$  is hydrogen, hydroxyl, protected hydroxyl or  $OR^{ii}$ , or an aliphatic or heteroaliphatic moiety,

wherein  $R^{ii}$  is an aliphatic or heteroaliphatic moiety, or wherein  $R_1$  and  $R_5$ , when taken together, may form a cycloaliphatic or heterocycloaliphatic moiety comprising 6 to 12 atoms;

$R_6$  is hydrogen, or an aliphatic, heteroaliphatic, aryl or heteroaryl moiety;

$R_7$  is hydrogen, hydroxyl, protected hydroxyl,  $OR^{iii}$ , or an aliphatic or heteroaliphatic moiety,

wherein  $R^{iii}$  is an aliphatic or heteroaliphatic moiety;

$R_8$  is hydrogen, hydroxyl, protected hydroxyl or  $OR^{iv}$ ,

wherein  $R^{iv}$  is an aliphatic or heteroaliphatic moiety;

$R_9$  is hydrogen,  $-CF_3$ ,  $-CHO$ , imine, hydrazone, oxime, carboxylic acid, carboxylic ester, acyl halide, ketone, amide, acetal, anhydride, dihalide, epoxide, nitrile or an aliphatic or heteroaliphatic moiety;

$R_{10}$  is hydroxyl or protected hydroxyl;

$R_{11}$  and  $R_{12}$  are each independently hydrogen, hydroxyl or  $OR^v$ , or an aliphatic or heteroaliphatic moiety, or, when taken together, may be  $-(C=O)-$ ;

wherein  $R^v$  is an aliphatic or heteroaliphatic moiety;

and  $R_{13}$  and  $R_{14}$  are each independently hydrogen, or an aliphatic, heteroaliphatic, aryl or heteroaryl moiety; and

pharmaceutically acceptable derivatives thereof;

whereby each of the foregoing aliphatic and heteroaliphatic moieties may independently be substituted or unsubstituted, cyclic or acyclic, linear or branched, and whereby each of the foregoing aryl and heteroaryl moieties may be substituted or unsubstituted;

with the proviso that when  $R_4$ ,  $R_5$ ,  $R_8$  and  $R_{10}$  are each hydroxyl,  $R_7$  is hydrogen,  $R_{13}$  and  $R_{14}$  are each methyl,  $R_2$  and  $R_3$ , taken together, form an epoxide, and  $n$  is 1, the following groups do not occur simultaneously as defined:

(i)  $R_1$  is methyl,  $R_9$  is hydrogen,  $(R_{11}, R_{12})$  is  $(=O)$  and  $R_6$  is ethyl or isopropyl;



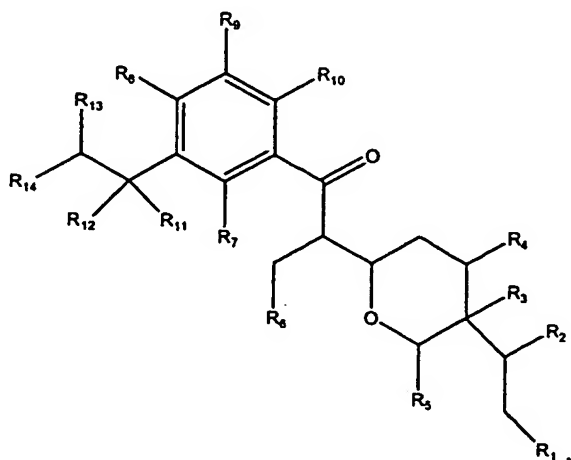
(ii)  $R_1$  is methyl,  $R_9$  is CHO, ( $R_{11}$ ,  $R_{12}$ ) is (OMe, H) and  $R_6$  is ethyl, propyl or isopropyl;

(iii)  $R_1$  is methyl,  $R_9$  is CHO,  $R_{11}$  and  $R_{12}$  are hydrogen and  $R_6$  is ethyl, propyl or isopropyl;

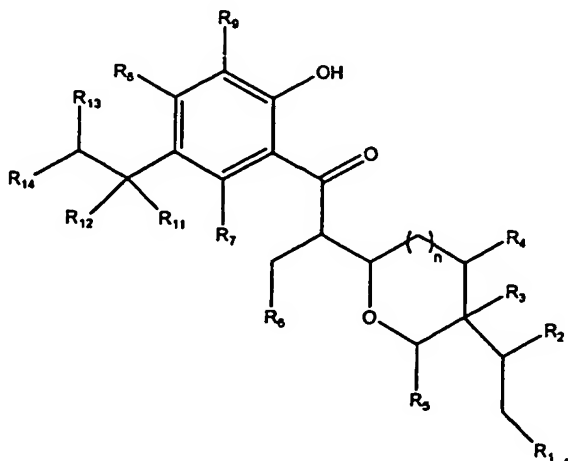
(iv)  $R_1$  is methyl,  $R_9$  is COCH<sub>3</sub>,  $R_{11}$  and  $R_{12}$  are hydrogen and  $R_6$  is ethyl; and

(v)  $R_1$  is ethyl,  $R_9$  is CHO,  $R_{11}$  and  $R_{12}$  are hydrogen and  $R_6$  is ethyl.

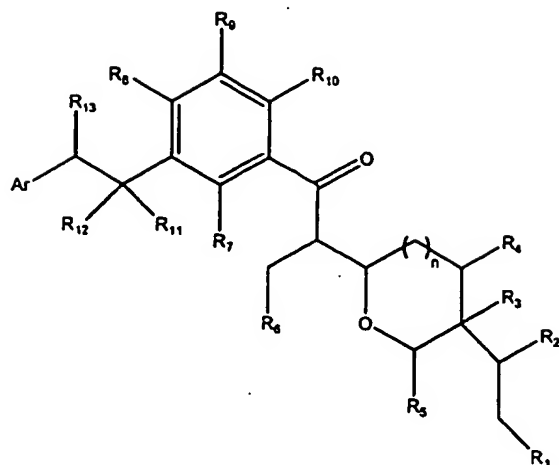
23. The pharmaceutical composition of claim 22 wherein  $n$  is 1 and the compound has the structure:



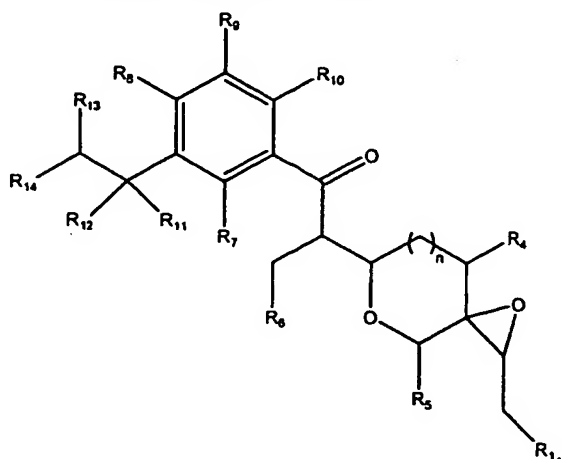
24. The pharmaceutical composition of claim 22 wherein  $R_{10}$  is hydroxyl and the compound has the structure:



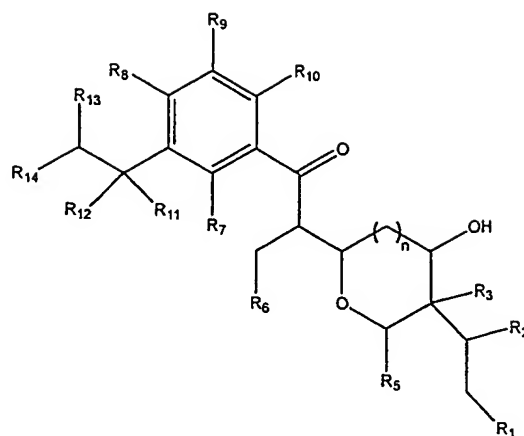
25. The pharmaceutical composition of claim 22 wherein  $R_{14}$  is aryl and the compound has the structure:



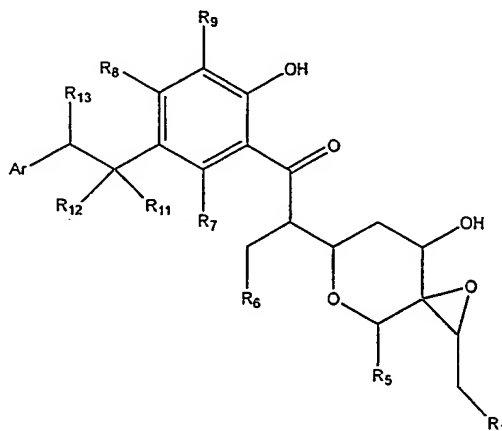
26. The pharmaceutical composition of claim 22 wherein  $R_2$  and  $R_3$ , taken together, form an epoxide, and the compound has the structure:



27. The pharmaceutical composition of claim 22 wherein  $R_4$  is hydroxyl and the compound has the structure:



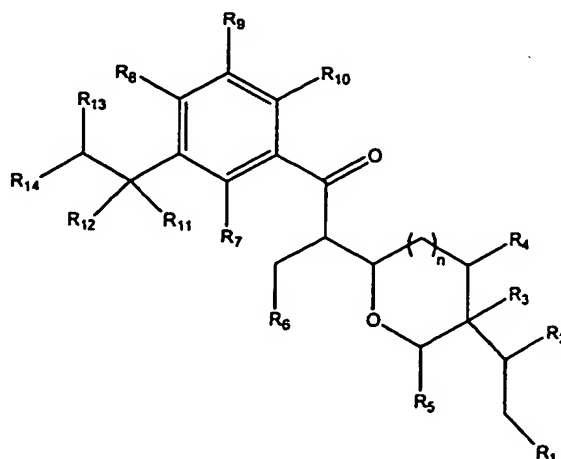
28. The pharmaceutical composition of claim 22 wherein  $R_2$  and  $R_3$ , taken together, form an epoxide,  $R_4$  and  $R_{10}$  are each hydroxyl,  $R_{14}$  is aryl,  $n$  is 1 and the compound has the structure:



29. The pharmaceutical composition of any one of claims 22, 23, 24, 25, 26, 27 or 28 wherein  $R_1$  is hydrogen or lower alkyl, and wherein the alkyl substituent may be substituted or unsubstituted, linear or branched or cyclic or acyclic.
30. The pharmaceutical composition of any one of claims 22, 23, 24, 25 or 27 wherein  $R_2$  and  $R_3$ , taken together, form a cyclopropyl moiety.

31. The pharmaceutical composition of any one of claims 22, 23, 24, 25 or 27 wherein  $R_2$  and  $R_3$ , taken together, form an epoxide.
32. The pharmaceutical composition of any one of claims 22, 23, 24, 25 or 26 wherein  $R_4$  is hydroxyl.
33. The pharmaceutical composition of any one of claims 22, 23, 24, 25, 26, 27 or 28 wherein  $R_5$  is hydroxyl or lower alkoxy, and wherein the alkoxy substituent may be substituted or unsubstituted, linear or branched or cyclic or acyclic.
34. The pharmaceutical composition of any one of claims 22, 23, 24, 25, 26, 27 or 28 wherein  $R_6$  is lower alkyl, and wherein the alkyl substituent may be substituted or unsubstituted, linear or branched or cyclic or acyclic.
35. The pharmaceutical composition of any one of claims 22, 23, 24, 25, 26, 27 or 28 wherein  $R_7$  is hydrogen, hydroxyl, lower alkyl or lower alkoxy, and wherein the alkyl and alkoxy substituents may be substituted or unsubstituted, linear or branched or cyclic or acyclic.
36. The pharmaceutical composition of any one of claims 22, 23, 24, 25, 26, 27 or 28 wherein  $R_8$  is hydrogen, hydroxyl or protected hydroxyl.
37. The pharmaceutical composition of any one of claims 22, 23, 24, 25, 26, 27 or 28 wherein  $R_9$  is  $-\text{CHO}$  or  $-\text{CH}_2\text{OR}^{\text{vi}}$ , wherein  $R^{\text{vi}}$  is hydrogen, protecting group or an aliphatic moiety, and wherein the aliphatic moiety may be substituted or unsubstituted, linear or branched or cyclic or acyclic.
38. The pharmaceutical composition of any one of claims 22, 23, 25, 26 or 27 wherein  $R_{10}$  is hydroxyl.
39. The pharmaceutical composition of any one of claims 22, 23, 24, 25, 26, 27 or 28 wherein  $R_{11}$  and  $R_{12}$  are independently hydrogen or lower alkoxy, and wherein the alkoxy substituent may be substituted or unsubstituted, branched or unbranched or cyclic or acyclic.

40. The pharmaceutical composition of any one of claims 22, 23, 24, 26 or 27 wherein  $R_{13}$  and  $R_{14}$  are independently hydrogen, lower alkyl or aryl, wherein the alkyl substituent may be substituted or unsubstituted, branched or unbranched or cyclic or acyclic, and wherein the aryl substituent may be substituted or unsubstituted.
41. The pharmaceutical composition of claim 25 or 28 wherein  $R_{13}$  is lower alkyl, and wherein the alkyl substituent may be substituted or unsubstituted, linear or branched or cyclic or acyclic.
42. The pharmaceutical composition of claim 28 wherein  $R_1$  is hydrogen or lower alkyl,  $R_5$  is hydroxyl or lower alkoxy,  $R_6$  is lower alkyl,  $R_7$  is hydrogen, hydroxyl, lower alkyl or lower alkoxy,  $R_8$  is hydrogen, hydroxyl or protected hydroxyl,  $R_9$  is  $-\text{CHO}$  or  $-\text{CH}_2\text{OR}^{\text{vi}}$ ,  $R_{11}$  and  $R_{12}$  are independently hydrogen or lower alkoxy, and  $R_{13}$  is lower alkyl; wherein  $R^{\text{vi}}$  is hydrogen, protecting group or an aliphatic or heteroaliphatic moiety;
- whereby each of the foregoing alkyl, alkoxy, aliphatic and heteroaliphatic moieties may be independently substituted or unsubstituted, linear or branched, or cyclic or acyclic.
43. A method for treating cancer comprising:  
administering to a subject in need thereof a therapeutically effective amount of a compound having the structure:



or pharmaceutically acceptable derivative thereof;

wherein n is 0, 1 or 2;

R<sub>1</sub> is hydrogen or an aliphatic, heteroaliphatic, aryl or heteroaryl moiety;

R<sub>2</sub> and R<sub>3</sub> are each independently hydrogen, or, when taken together, may be -O- or -  
(CH<sub>2</sub>)<sub>q</sub>-, where q is 1, 2 or 3;

R<sub>4</sub> is hydrogen, hydroxyl, protected hydroxyl or OR<sup>i</sup>, or an aliphatic or heteroaliphatic moiety,

wherein R<sup>i</sup> is an aliphatic or heteroaliphatic moiety;

R<sub>5</sub> is hydrogen, hydroxyl, protected hydroxyl or OR<sup>ii</sup>, or an aliphatic or heteroaliphatic moiety,

wherein R<sup>ii</sup> is an aliphatic or heteroaliphatic moiety, or wherein R<sub>1</sub> and R<sub>5</sub>, when taken together, may form a cycloaliphatic or heterocycloaliphatic moiety comprising 6 to 12 atoms;

R<sub>6</sub> is hydrogen, or an aliphatic, heteroaliphatic, aryl or heteroaryl moiety;

R<sub>7</sub> is hydrogen, hydroxyl, protected hydroxyl, OR<sup>iii</sup>, or an aliphatic or heteroaliphatic moiety,

wherein R<sup>iii</sup> is an aliphatic or heteroaliphatic moiety;

R<sub>8</sub> is hydrogen, hydroxyl, protected hydroxyl or OR<sup>iv</sup>,

wherein R<sup>iv</sup> is an aliphatic or heteroaliphatic moiety;

R<sub>9</sub> is hydrogen, -CF<sub>3</sub>, -CHO, imine, hydrazone, oxime, carboxylic acid, carboxylic ester, acyl halide, ketone, amide, acetal, anhydride, dihalide, epoxide, nitrile or an aliphatic or heteroaliphatic moiety;

R<sub>10</sub> is hydroxyl or protected hydroxyl;

R<sub>11</sub> and R<sub>12</sub> are each independently hydrogen, hydroxyl or OR<sup>v</sup>, or an aliphatic or heteroaliphatic moiety, or, when taken together, may be -(C=O)-;

wherein R<sup>v</sup> is an aliphatic or heteroaliphatic moiety;

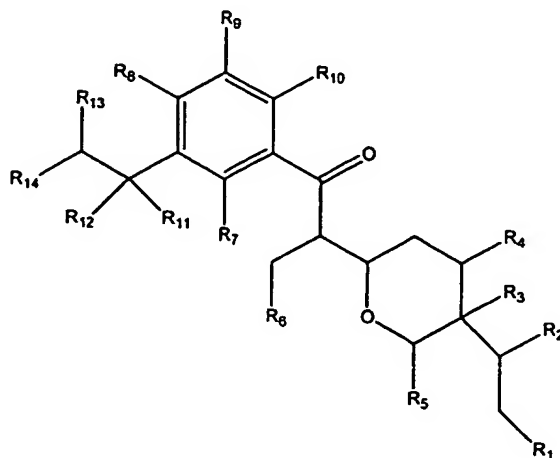
and R<sub>13</sub> and R<sub>14</sub> are each independently hydrogen, or an aliphatic, heteroaliphatic, aryl or heteroaryl moiety;

whereby each of the foregoing aliphatic and heteroaliphatic moieties may independently be substituted or unsubstituted, cyclic or acyclic, linear or branched, and whereby each of the foregoing aryl and heteroaryl moieties may be substituted or unsubstituted;

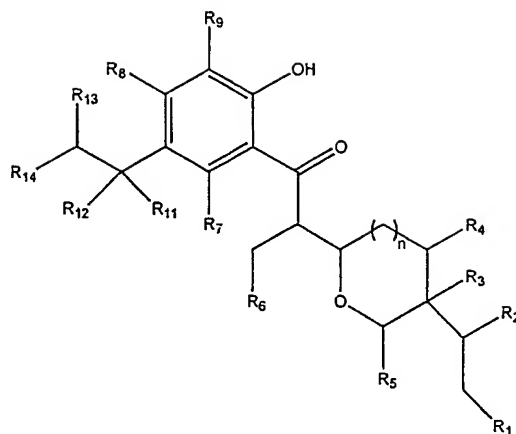
with the proviso that when  $R_4$ ,  $R_5$ ,  $R_8$  and  $R_{10}$  are each hydroxyl,  $R_7$  is hydrogen,  $R_{13}$  and  $R_{14}$  are each methyl,  $R_2$  and  $R_3$ , taken together, form an epoxide, and  $n$  is 1, the following groups do not occur simultaneously as defined:

- (i)  $R_1$  is methyl,  $R_9$  is hydrogen,  $(R_{11}, R_{12})$  is  $(=O)$  and  $R_6$  is ethyl or isopropyl;
- (ii)  $R_1$  is methyl,  $R_9$  is  $CHO$ ,  $(R_{11}, R_{12})$  is  $(OMe, H)$  and  $R_6$  is ethyl, propyl or isopropyl;
- (iii)  $R_1$  is methyl,  $R_9$  is  $CHO$ ,  $R_{11}$  and  $R_{12}$  are hydrogen and  $R_6$  is ethyl, propyl or isopropyl;
- (iv)  $R_1$  is methyl,  $R_9$  is  $COCH_3$ ,  $R_{11}$  and  $R_{12}$  are hydrogen and  $R_6$  is ethyl; and
- (v)  $R_1$  is ethyl,  $R_9$  is  $CHO$ ,  $R_{11}$  and  $R_{12}$  are hydrogen and  $R_6$  is ethyl.

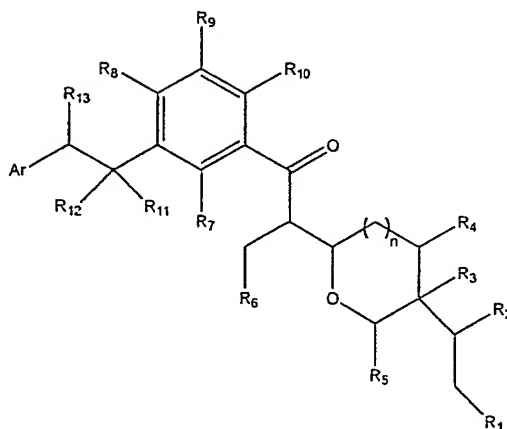
45. The method of claim 43 wherein in the compound  $n$  is 1 and the compound has the structure:



46. The method of claim 43 wherein in the compound  $R_{10}$  is hydroxyl and the compound has the structure:

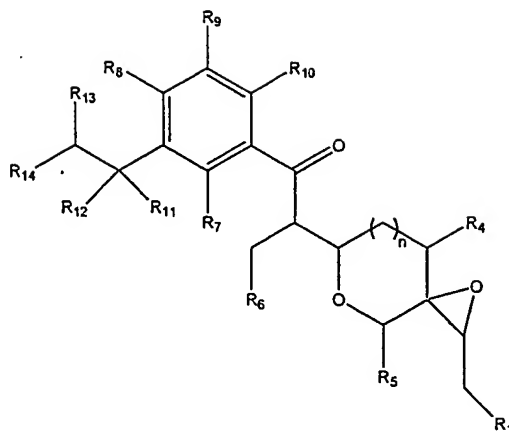


47. The method of claim 43 wherein in the compound R<sub>14</sub> is aryl and the compound has the structure:

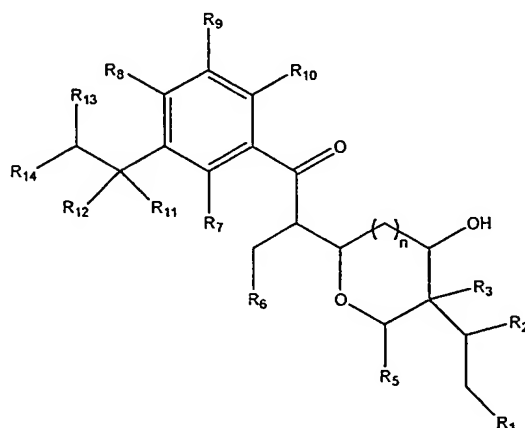


48. The method of claim 43 wherein in the compound R<sub>2</sub> and R<sub>3</sub>, taken together, form an epoxide and the compound has the structure:

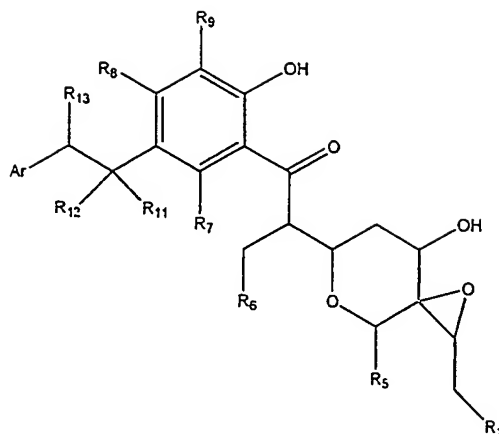




49. The method of claim 43 wherein in the compound  $R_4$  is hydroxyl and the compound has the structure:



50. The method of claim 43 wherein in the compound  $R_2$  and  $R_3$ , taken together, form an epoxide,  $R_4$  and  $R_{10}$  are each hydroxyl,  $R_{14}$  is aryl,  $n$  is 1 and the compound has the structure:



51. The method of any one of claims 43, 44, 45, 46, 47, 48, 49 or 50 wherein in the compound R<sub>1</sub> is hydrogen or lower alkyl, and wherein the alkyl substituent may be substituted or unsubstituted, linear or branched or cyclic or acyclic.
52. The method of any one of claims 43, 44, 45, 46, 47 or 49 wherein in the compound R<sub>2</sub> and R<sub>3</sub>, taken together, form a cyclopropyl moiety.
53. The method of any one of claims 43, 44, 45, 46, 47 or 49 wherein in the compound R<sub>2</sub> and R<sub>3</sub>, taken together, form an epoxide.
54. The method of any one of claims 43, 44, 45, 46, 47 or 48 wherein in the compound R<sub>4</sub> is hydroxyl.
55. The method of any one of claims 43, 44, 45, 46, 47, 48, 49 or 50 wherein in the compound R<sub>5</sub> is hydroxyl or lower alkoxy, and wherein the alkoxy substituent may be substituted or unsubstituted, linear or branched or cyclic or acyclic.
56. The method of any one of claims 43, 44, 45, 46, 47, 48, 49 or 50 wherein in the compound R<sub>6</sub> is lower alkyl, and wherein the alkyl substituent may be substituted or unsubstituted, linear or branched or cyclic or acyclic.

57. The method of any one of claims 43, 44, 45, 46, 47, 48, 49 or 50 wherein in the compound  $R_7$  is hydrogen, hydroxyl, lower alkyl or lower alkoxy, and wherein the alkyl and alkoxy substituents may be substituted or unsubstituted, linear or branched or cyclic or acyclic.
58. The method of any one of claims 43, 44, 45, 46, 47, 48, 49 or 50 wherein in the compound  $R_8$  is hydrogen, hydroxyl or protected hydroxyl.
59. The method of any one of claims 43, 44, 45, 46, 47, 48, 49 or 50 wherein in the compound  $R_9$  is  $-\text{CHO}$  or  $-\text{CH}_2\text{OR}^{\text{vi}}$ , wherein  $R^{\text{vi}}$  is hydrogen, protecting group or an aliphatic moiety, and wherein the aliphatic moiety may be substituted or unsubstituted, linear or branched or cyclic or acyclic.
60. The method of any one of claims 43, 44, 45, 47, 48 or 49 wherein in the compound  $R_{10}$  is hydroxyl.
61. The method of any one of claims 43, 44, 45, 46, 47, 48, 49 or 50 wherein in the compound  $R_{11}$  and  $R_{12}$  are independently hydrogen or lower alkoxy, and wherein the alkoxy substituent may be substituted or unsubstituted, branched or unbranched or cyclic or acyclic.
62. The method of any one of claims 43, 44, 45, 46, 48 or 49 wherein in the compound  $R_{13}$  and  $R_{14}$  are independently hydrogen, lower alkyl or aryl, wherein the alkyl substituent may be substituted or unsubstituted, branched or unbranched or cyclic or acyclic, and wherein the aryl substituent may be substituted or unsubstituted.
63. The method of claim 47 or 50 wherein in the compound  $R_{13}$  is lower alkyl, and wherein the alkyl substituent may be substituted or unsubstituted, linear or branched or cyclic or acyclic.
64. The method of claim 50 wherein in the compound  $R_1$  is hydrogen or lower alkyl,  $R_5$  is hydroxyl or lower alkoxy,  $R_6$  is lower alkyl,  $R_7$  is hydrogen, hydroxyl, lower alkyl or lower alkoxy,  $R_8$  is hydrogen, hydroxyl or protected hydroxyl,  $R_9$  is  $-\text{CHO}$  or  $-\text{CH}_2\text{OR}^{\text{vi}}$ ,  $R_{11}$  and  $R_{12}$  are independently hydrogen or lower alkoxy, and  $R_{13}$  is lower

alkyl; wherein R<sup>vi</sup> is hydrogen, protecting group or an aliphatic or heteroaliphatic moiety;  
whereby each of the foregoing alkyl, alkoxyl, aliphatic and heteroaliphatic moieties may be independently substituted or unsubstituted, linear or branched, or cyclic or acyclic.